



## SEQUENCE LISTING

<110> ALLAN, Gordon M.  
MEEHAN, Brian M.  
ELLIS, John A.  
KRAKOWKA, George S.  
AUDONNET, Jean-Christophe F.

<120> PORCINE CIRCOVIRUS AND PARVOVIRUS VACCINE

<130> 454313-2338

<140> 09/347,594

<141> 1999-07-01

<150> 98 08777

<151> 1998-07-06

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<170> PatentIn Ver. 2.1

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ELLIS, John A.  
KRAKOWKA, George S.  
AUDONNET, Jean-Christophe F.

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<210> 2

<211> 1767  
 <212> DNA  
 <213> Porcine circovirus

<400> 2

|            |             |            |            |            |             |      |
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| aattcaacct | taacctttct  | tattctgtag | tattcaaagg | gcacagagcg | ggggtttgag  | 60   |
| ccccctcctg | ggggaagaaa  | gtcattaata | ttgaatctca | tcatgtccac | cgcccaggag  | 120  |
| ggcggttttg | ctgtgggtcg  | cttgacagta | tatccgaagg | tgcgggagag | gcgggtgttg  | 180  |
| aagatgccat | ttttccttct  | ccagcggtaa | cggtggcggg | ggtggacgag | ccaggggagg  | 240  |
| cggcgaggga | tctggccaag  | atggctgcgg | gggcggtgtc | ttcttctccg | gtaacgcctc  | 300  |
| cttgatagc  | tcatatctga  | aaacgaaaga | agtgcgctgt | aagtattacc | agcgcacttc  | 360  |
| ggcagcggca | gcacctcggc  | agcacctcag | cagcaacatg | cccagcaaga | agaatggaag  | 420  |
| aagcggaccc | caaccccata  | aaaggtgggt | gttcactctg | aataatcctt | ccgaagacga  | 480  |
| gcgcaagaaa | atacgggagc  | ttccaatctc | cctatttgat | tattttattg | ttggcgaggga | 540  |
| gggtaagtga | gaaggacgaa  | cacctcacct | ccaggggttc | gctaattttg | tgaagaagca  | 600  |
| gacttttaat | aaagtgaagt  | ggtatttggg | tgcccgctgc | cacatcgaga | aagcgaagg   | 660  |
| aacagatcag | cagaataaag  | aatactgcag | taaagaaggc | aacttactga | tggagtgtgg  | 720  |
| agctcctaga | tctcagggac  | aacggagtga | cctgtctact | gctgtgagta | ccttggttga  | 780  |
| gagcgggagt | ctggtgaccg  | ttgcagagca | gcacctgtga | acgtttgtca | gaaatttccg  | 840  |
| cgggctggct | gaacttttga  | aagtgagcgg | gaaaatgcag | aagcgtgatt | ggaagactaa  | 900  |
| tgtacacgtc | attgtggggc  | cacctgggtg | tggtaaaagc | aaatgggctg | ctaattttgc  | 960  |
| agaccgggaa | accacatact  | ggaaaccacc | tagaaacaag | tggtgggatg | gttaccatgg  | 1020 |
| tgaagaagtg | gttggttattg | atgactttta | tggtgggtcg | ccctgggatg | atctactgag  | 1080 |
| actgtgtgat | cgatatccat  | tgactgtaga | gactaaagg  | ggaactgtac | cttttttggc  | 1140 |
| ccgcagtatt | ctgattacca  | gcaatcagac | cccggtggaa | tggtactcct | caactgctgt  | 1200 |
| cccagctgta | gaagctcttt  | atcggaggat | tacttccttg | gtatttttga | agaatgctac  | 1260 |
| agaacaatcc | acggagggaag | ggggccagtt | cgtcaccctt | tcccccccat | gcctgaatt   | 1320 |
| tccatatgaa | ataaattact  | gagtcttttt | tactacttcg | taatggtttt | tattattcat  | 1380 |
| taagggttaa | gtgggggggtc | tttaagatta | aattctctga | attgtacata | catggttaca  | 1440 |
| cggatattgt | attcctgggtc | gtatatactg | ttttcgaaag | cagtgccgag | gcctacgtgg  | 1500 |
| tctacatttc | cagtagttttg | tagtctcagc | cacagctgat | ttcttttgtt | gtttggttgg  | 1560 |
| aagtaataca | tagtggaatc  | taggacaggt | ttgggggtaa | agtagcggga | gtggtaggga  | 1620 |
| aagggtcggg | ttatgggtatg | gcgggaggag | tagtttacat | aggggtcata | ggtgagggtc  | 1680 |
| gtggcctttg | ttacaaagtt  | atcatctaga | ataacagcac | tggagcccac | tccctgttca  | 1740 |
| ccctgggtga | tgggggagca  | gggccag    |            |            |             | 1767 |

<210> 3  
 <211> 1768  
 <212> DNA  
 <213> Porcine circovirus

<400> 3

|             |             |            |            |            |             |      |
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| ccccctcccg  | ggggaacaaa  | gtcgtcaata | ttaaatctca | tcatgtccac | cgcccaggag  | 120  |
| ggcggttctga | ctgtgggtagc | cttgacagta | tatccgaagg | tgcgggagag | gcgggtgttg  | 180  |
| aagatgccat  | ttttccttct  | ccaacggtag | cggtggcggg | ggtggacgag | ccaggggagg  | 240  |
| cggcgaggga  | tctggccaag  | atggctgcgg | gggcggtgtc | ttcttctgcg | gtaacgcctc  | 300  |
| cttgatagc   | tcatagctga  | aaacgaaaga | agtgcgctgt | aagtattacc | agcgcacttc  | 360  |
| ggcagcggca  | gcacctcggc  | agcacctcag | cagcaacatg | cccagcaaga | agaatggaag  | 420  |
| aagcggaccc  | caaccacata  | aaaggtgggt | gttcacgctg | aataatcctt | ccgaagacga  | 480  |
| gcgcaagaaa  | atacgggagc  | tccaatctc  | cctatttgat | tattttattg | ttggcgaggga | 540  |
| gggtaagtga  | gaaggacgaa  | cacctcacct | ccaggggttc | gctaattttg | tgaagaagca  | 600  |
| aacttttaat  | aaagtgaagt  | ggtatttggg | tgcccgctgc | cacatcgaga | aagccaaagg  | 660  |
| aactgatcag  | cagaataaag  | aatattgcag | taaagaaggc | aacttactta | ttgaatgtgg  | 720  |
| agctcctcga  | tctcaaggac  | aacggagtga | cctgtctact | gctgtgagta | ccttggttga  | 780  |
| gagcgggagt  | ctggtgaccg  | ttgcagagca | gcacctgtga | acgtttgtca | gaaatttccg  | 840  |
| cgggctggct  | gaacttttga  | aagtgagcgg | gaaaatgcag | aagcgtgatt | ggaagaccaa  | 900  |
| tgtacacgtc  | attgtggggc  | cacctgggtg | tggtaaaagc | aaatgggctg | ctaattttgc  | 960  |
| agaccgggaa  | accacatact  | ggaaaccacc | tagaaacaag | tggtgggatg | gttaccatgg  | 1020 |
| tgaagaagtg  | gttggttattg | atgactttta | tggtgggtcg | ccgtgggatg | atctactgag  | 1080 |

|              |            |            |            |            |             |      |
|--------------|------------|------------|------------|------------|-------------|------|
| actgtgtgat   | cgatatccat | tgactgtaga | gactaaaggt | ggaactgtac | cttttttggc  | 1140 |
| ccgcagttatt  | ctgattacca | gcaatcagac | cccgttggaa | tggtactcct | caactgctgt  | 1200 |
| cccagctgta   | gaagctctct | atcggaggat | tacttccttg | gtattttgga | agaatgctac  | 1260 |
| agaacaatcc   | acggaggaag | ggggccagtt | cgtcaccctt | cccccccat  | gccctgaatt  | 1320 |
| tccatatgaa   | ataaattact | gagtcttttt | tatcacttcg | taatggtttt | tattattcat  | 1380 |
| ttagggttta   | agtggggggt | ctttaagatt | aaattctctg | aattgtacat | acatgggttac | 1440 |
| acggatatattg | tagtcctggg | cgtatatact | gttttcgaac | gcagtgccga | ggcctacgtg  | 1500 |
| gtccacattt   | ctagagggtt | gtagcctcag | ccaaagctga | ttccttttgt | tatttggttg  | 1560 |
| gaagtaatca   | atagtggagt | caagaacagg | tttgggtgtg | aagtaacggg | agtggtagga  | 1620 |
| gaaggggttg   | gggattgtat | ggcgggagga | gtagtttaca | tatgggtcat | aggttagggc  | 1680 |
| tgtggccttt   | gttacaaagt | tatcatctag | aataacagca | gtggagccca | ctcccctatc  | 1740 |
| accctgggtg   | atgggggagc | agggccag   |            |            |             | 1768 |

<210> 4  
 <211> 1768  
 <212> DNA  
 <213> Porcine circovirus

|              |             |             |             |             |             |      |
|--------------|-------------|-------------|-------------|-------------|-------------|------|
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| ccccctccc    | ggggaacaaa  | gtcgtcaatt  | ttaaatctca  | tcattgtccac | cgcccaggag  | 120  |
| ggcgttgtag   | ctgtggtacg  | cttgacagta  | tatccgaagg  | tgccggagag  | gcgggtgttg  | 180  |
| aagatgccat   | ttttccttct  | ccaacggtag  | cgggtggcgg  | ggtggacgag  | ccaggggcgg  | 240  |
| cggcggagga   | tctggccaag  | atggctgcgg  | gggcgggtgtc | ttcttctgcg  | gtaacgcctc  | 300  |
| cttggatacg   | tcatactgta  | aaacgaaaga  | agtgcgctgt  | aagtattacc  | agcgcacttc  | 360  |
| ggcagcggca   | gcacctcggc  | agcacctcag  | cagcaacatg  | cccagcaaga  | agaatggaag  | 420  |
| aagcggaccc   | caaccacata  | aaagggtggg  | gttcacgctg  | aataatcctt  | ccgaagacga  | 480  |
| gcgcaagaaa   | atacgggagc  | tcccaatctc  | cctattttgat | tattttattg  | ttggcgagga  | 540  |
| gggtaattgag  | gaaggacgaa  | cacctcacct  | ccaggggttc  | gctaattttg  | tgaagaagca  | 600  |
| aacttttaat   | aaagtgaagt  | ggtattttgg  | tgcccgtgc   | cacatcgaga  | aagccaaagg  | 660  |
| aactgatcag   | cagaataaag  | aatattgcag  | taaagaaggc  | aacttactta  | ttgaatgtgg  | 720  |
| agctcctcga   | tctcaaggac  | aacggagtga  | cctgtctact  | gctgtgagta  | ccttgttggg  | 780  |
| gagcgggagt   | ctgggtgaccg | ttgcagagca  | gcacctgtga  | acgtttgtca  | gaaatttccg  | 840  |
| cgggctggct   | gaacttttga  | aagtgcgcgg  | gaaaatgcag  | aagcgtgatt  | ggaagaccaa  | 900  |
| tgtacacgtc   | attgtggggc  | cacctgggtg  | tggtaaaagc  | aaatgggctg  | ctaattttgc  | 960  |
| agaccgggaa   | accacatact  | ggaaaccacc  | tagaaacaag  | tggtgggatg  | gttaccatgg  | 1020 |
| tgaagaagtg   | gttggttattg | atgactttta  | tggctggctg  | ccgtgggatg  | atctactgag  | 1080 |
| actgtgtgat   | cgatatccat  | tgactgtaga  | gactaaaggt  | ggaactgtac  | cttttttggc  | 1140 |
| ccgcagttatt  | ctgattacca  | gcaatcagac  | cccgttggaa  | tggtactcct  | caactgctgt  | 1200 |
| cccagctgta   | gaagctctct  | atcggaggat  | tacttccttg  | gtattttgga  | agaatgctac  | 1260 |
| agaacaatcc   | acggaggaag  | ggggccagtt  | cgtcaccctt  | cccccccat   | gccctgaatt  | 1320 |
| tccatatgaa   | ataaattact  | gagtcttttt  | tatcacttcg  | taatggtttt  | tattattcat  | 1380 |
| ttagggttta   | agtggggggt  | ctttaagatt  | aaattctctg  | aattgtacat  | acatgggttac | 1440 |
| acggatatattg | tagtcctggg  | cgtattttact | gttttcgaac  | gcagcgcgga  | ggcctacgtg  | 1500 |
| gtccacattt   | ccagagggtt  | gtagtctcag  | ccaaagctga  | ttccttttgt  | tatttggttg  | 1560 |
| gaagtaatca   | atagtggagt  | caagaacagg  | tttgggtgtg  | aagtaacggg  | agtggtagga  | 1620 |
| gaaggggttg   | gggattgtat  | ggcgggagga  | gtagtttaca  | tatgggtcat  | aggttagggc  | 1680 |
| tgtggccttt   | gttacaaagt  | tatcatctag  | aataacagca  | gtggagccca  | ctcccctatc  | 1740 |
| accctgggtg   | atgggggagc  | agggccag    |             |             |             | 1768 |

<210> 5  
 <211> 1759  
 <212> DNA  
 <213> Porcine circovirus

|            |            |             |            |            |             |     |
|------------|------------|-------------|------------|------------|-------------|-----|
| <400> 5    |            |             |            |            |             |     |
| aattcatatt | tagcctttct | aatacggtag  | tattggaaag | gtaggggtag | ggggttgggtg | 60  |
| ccgcctgagg | gggggaggaa | ctggccgatg  | ttgaatttga | ggtagttaac | attccaagat  | 120 |
| ggctgcgagt | atcctccttt | tatgggtgagt | acaaattctg | tagaaaggcg | ggaattgaag  | 180 |

|             |            |            |             |            |             |      |
|-------------|------------|------------|-------------|------------|-------------|------|
| atacccggtct | ttcggcgcca | tctgtaacgg | tttctgaagg  | cggggtgtgc | caaatatggt  | 240  |
| cttctccgga  | ggatgtttcc | aagatggctg | cgggggcggg  | tccttcttct | gcggtaacgc  | 300  |
| ctccttggcc  | acgtcatcct | ataaaagtga | aagaagtgcg  | ctgctgtagt | attaccagcg  | 360  |
| cacttcggca  | gcggcagcac | ctcggcagcg | tcagtgaaaa  | tgccaagcaa | gaaaagcggc  | 420  |
| cgcgaacccc  | ataagaggtg | ggtgttcacc | cttaataatc  | cttccgagga | ggagaaaaac  | 480  |
| aaaatacggg  | agcttccaat | ctcccttttt | gattattttg  | tttgcggaga | ggaaggtttg  | 540  |
| gaagagggtg  | gaactcctca | cctccagggg | tttgcgcaatt | ttgctaagaa | gcgacttttt  | 600  |
| aacaagggtg  | agtggatatt | tggtgcccgc | tgccacatcg  | agaaagcgaa | aggaaccgac  | 660  |
| cagcagaata  | agaataactg | cagtaaagaa | ggccacatac  | ttatcgagtg | tggagctccg  | 720  |
| cgggaaccag  | ggaagcgcag | cgacctgtct | actgctgtga  | gtaccctttt | ggagacgggg  | 780  |
| tcttttggtg  | ctgtagccga | gcagttccct | gtaacgtatg  | tgagaaattt | ccgcgggctg  | 840  |
| gctgaacttt  | tgaaagtga  | cgggaagatg | cagcagcgtg  | attggaagac | agctgtacac  | 900  |
| gtcatagtgg  | gcccgcgcgg | ttgtgggaag | agccagtggg  | cccgtaat   | tgctgagcct  | 960  |
| agggacacct  | actggaagcc | tagtagaaat | aagtgggtggg | atggatatca | tgagagaagaa | 1020 |
| gttgttgttt  | tggtatgatt | ttatggctgg | ttaccttggg  | atgatctact | gagactgtgt  | 1080 |
| gaccggtatc  | cattgactgt | agagactaaa | gggggtactg  | ttcctttttt | ggccccgagt  | 1140 |
| attttgatta  | ccagcaatca | ggccccccag | gaatggtact  | cctcaactgc | tgtcccagct  | 1200 |
| gtagaagctc  | tctatcggag | gattactact | ttgcaat     | ggaagactgc | tggagaacaa  | 1260 |
| tccacggagg  | taccgaagg  | cggatttgaa | gcagtggacc  | cacctgtgc  | ccttttccca  | 1320 |
| tataaaataa  | attactgagt | cttttttggt | atcacatcgt  | aatgggtttt | atttttat    | 1380 |
| atthagaggg  | tcttttagga | taaattctct | gaattgtaca  | taaatagtca | gccttaccac  | 1440 |
| ataat       | gctgtggctg | cattttggag | cgcatagccg  | aggcctgtgt | gctcgacatt  | 1500 |
| ggtgtgggta  | tttaa      | gccacagctg | gtttctttta  | ttatttgggt | ggaaccaatc  | 1560 |
| aattgtttgg  | tccagctcag | gtttgggggt | gaagtacctg  | gagtggtagg | taaagggtg   | 1620 |
| ccttatggtg  | tggcgggagg | agtagttaat | ataggggtca  | taggccaagt | tggtggaggg  | 1680 |
| ggttacaaag  | ttggcatcca | agataacaac | agtggacca   | acacctctt  | gattagaggt  | 1740 |
| gatggggtct  | ctggggtaa  |            |             |            |             | 1759 |